DOCUMENT RESUME

ED 206 959 EC 133 530

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TITLE The Use of Communication Boards with Cerebral Palsied Non-Speaking Children.
PUB DATE Apr 81
NOTE 18p.; Paper presented at the Annual International Convention of The Council for Exceptional Children (59th, New York, NY, April, 1981, Session F-61).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cerebral Palsy; *Communication Aids (for Disabled); *Communication Skills; *Speech Handicaps; *Verbal Communication

ABSTRACT

The article is intended to help speech pathologists, classroom teachers, and parents interested in using a communication board strategy for a cerebral palsied, nonspeaking child. The first of four areas of concern in the use of a communicaton board covers factors influencing the use of such a system. Such factors as level of intellectual development, level of visual acuity, and the potential for speech are presented in this section. The second section covers such implementation factors as the mounting of the board on a child's wheelchair, the range of motion of the child, and the choice of words to be used on a communication board. The third section presents the three principal types of communication boards and the advantages and disadvantages of each. The fourth section covers the added problems presented by the prereading, nonspeaking child. (Author)

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"The Use of Communication Boards with Cerebral Palsied Non-Speaking Children"

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A Paper Presented at the Council for Exceptional Children's
59th Annual International Convention, New York City, April 12-17, 1981.

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The ability to communicate is an accepted need for nearly all people. This need includes the cerebral palsied, non-speaking child. The fact that the normal avenue of communication skill, i.e., speech, is not readily available to such individuals should not deter efforts to aid them.

In order to assist the cerebral palsied, non-speaking child in establishing an effective means of communication, the language board or communication board is used. This paper describes factors such as when to introduce a communication board, how to implement this decision, the types of boards typically used with the advantages and disadvantages of each, and the special problems presented by the pre-reading, non-speaking child.

Factors Influencing Use of a Communication Board

Desire to communicate. An important factor related to communication board success is the desire of the child to communicate (Cerebral Palsy Communication Group, 1975). The child who exhibits frustration at his/her inability to communicate and is always attempting to express his/her needs and desires may be able to overcome some of the factors to be discussed in the remainder of this section. Another child who might appear to have most or all of the requisite tools to use a communication board but, for whatever reason, fails to exhibit any desire to express himself/herself may not bother to use such a device regardless of the implementation strategy used.

Intellectual development. The level of intellectual development is a factor which will require a team effort to adequately assess. The psychologist, occupational therapist, physical therapist, speech therapist, and/or teacher may all be needed to assess this area. Their effort will help to define the type of board and the initial vocabulary to be selected. That a

higher functioning child can make more rapid progress than a lower functioning child may be assumed. It should be noted that degree of physical impairment is not what is being considered here. Adaptations in the implementation strategies, to be discussed later, can overcome most physical problems.

Visual acuity and visual perception. The level of visual acuity and visual perception is another factor to be considered. If the child can attend--or through appropriate training learn to attend--to specific visual stimuli and exhibit form discrimination, then the visual requirements for communication board use can be understood to be met (Cerebral Palsy Communication Group, 1975; Vanderheiden and Harris-Vanderheiden, 1976).

Language comprehension. The ability to understand or to learn language acquisition procedures is considered next. To guarantee maximum success in communication board use the child must be able to acquire the ability to learn and employ word recognition techniques, demonstrate a storage and retrieval ability for a sight word vocabulary, develop word analysis techniques and understand the structure of language as a means to appropriate communication (McDonald and Schultz, 1973).

Parental attitudes. Finally, the attitudes of the parent (and/or other care providers) toward the use of a communication board must be discerned. Oftentimes parents may see the institution of a communication board strategy as an indication that the professional working with their child has given up on ever teaching the child to use speech. If the child has failed to exhibit any functional speech, this may not be much of a problem. If, on the other hand, the prognosis for the child is for some

functional speech, then the parent should be advised that the use of the communication board is considered to be an aid to more functional speech. By removing major emphasis for communication skill from the speech mode, it is felt that speech use may proceed more easily (Ontario Crippled Children's Centre, 1975). Whenever any communication board strategy is implemented, it is hoped that the communication board will be used in situations outside of the educational environment. In order to ensure such an occurrence and to help the child develop a positive attitude toward communication board use, the cooperation of the parent must be elicited.

Implementation Factors

After a decision has been made to introduce a communication board strategy to the child, the next consideration is the commencement of its use. Three factors to be considered are: 1) the range-of-motion of the child; 2) the manner in which the words and/or phrases should be placed on the communication board; and 3) the mounting of the communication board on the child's wheelchair, if the child uses a wheelchair.

Range-of-motion. The range-of-motion of the child will help to dictate both the kind of communication board used as well as the general placement of the words on the board. The range-of-motion need not be limited to hand or finger pointing skills. If the child possesses excellent head and neck control and feels comfortable using a headstick, then the range-of-motion is usually performed by a physical therapist.

If the child has an effective range-of-motion which is limited to a relatively small area, then an encoding rather than a direct selection board

will most likely be the board of choice (see next section). Occasionally, a child will demonstrate an excellent range-of-motion on one side of his midline, but a rather poor range-of-motion on the other side of his midline. If this is the case, then one should consider mounting the board on the side of the midline which is most appropriate. Such a decision can affront one's sense of symmetry, but it is the use of the board by the child which is the most important factor.

Choice and location of words and phrases. The choice and location of words and phrases on the communication board should be done carefully. The words, as appropriately as possible, should follow the left to right syntax of standard English. Two traditional ways in which this can be done are the Fitzgerald Key (Fitzgerald, 1954) and the Linguistic Summary of the Ontario Crippled Children's Centre (Ontario Crippled Children's Centre, 1975).

In the noun area of the board, the names of persons (or things) of importance to the child should be included. Such persons would normally include family members, therapists, teachers, classmates, friends and pets. An added list can be mounted for theme units of classroom instructions; e.g., a lesson in American History might require the naming of certain American Presidents which could be placed near the noun column to aid both student and teacher.

Body parts and bodily needs should be included in even the most basic language board to allow the child to express basic needs and desires (e.g., "I'm tired," "My leg hurts," "I feel fine," etc.).

Persons aiding in the selection of words and phrases for a communication

board should avoid the temptation of excluding personal feelings from the child's vocabulary. The child, as much as we might hope otherwise, may want to express negative feelings (e.g., "Leave me alone!" "Get lost!" "I don't like you!" etc.). Occasionally, well intentioned people omit such phrases from a child's board. These omissions demonstrate an insensitivity of the child's emotions which should not be denied.

Mounting of communication board. If the child is in a wheelchair, then the communication board can be simply placed on a lap board which can usually be made to fit any chair. If the child is ambulatory, then the communication board may be transported by the child in an easily accessible school bag. The words should be large enough to be readily discerned by the child (typed or formally printed, if possible) and placed within the child's visual field.

Since the lap board of the wheelchair traditionally serves many other functions, e.g., mealtime placemats, it is wise to provide the board with some kind of covering. At first thought lamination might appear to be the ideal method but, although lamination will guarantee a permanent seal of the communication board, it also prohibits the introduction of any new words once the lamination process has taken place. The ideal way to protect the communication board from becoming messy, while at the same time allowing easy access to increase or alter the communication board composition, is through a piece of plexiglass mounted with screws.

Types of Communication Boards

The three principal types of communication boards used are: 1) scanning; 2) encoding; and 3) direct selection. Each board has its

advantages and disadvantages which will be discussed in this section. Before beginning such a presentation it might be useful to present a brief discussion concerning the basic manner in which each of these boards may be implemented. In very simple terms, each of the three types of communication boards may be either non-electronic or electronic.

The non-electronic boards are usually easily constructed and cost very little. They are usually fully portable but they do not possess any type of recording apparatus. For the young child who will probably not need to keep any record of his conversations or be required to execute a long written assignment, e.g., term paper, a non-electronic device will probably be sufficient.

For the child, however, who may need to keep a record of his thoughts or conversations an electronic device will probably be required. The issue in such an instance then becomes one of portability. Many of the electronic aids can be readily connected to modified electric typewriters which can produce a written output. Obviously, in such an instance, the user is tied to the typewriter and its electric outlet needs. There are some electronic aids which not only provide a written output, but are fully portable as well. Such electronic aids are almost always fun to operate but they can become very expensive, and care should be taken in recommending their use.

It should be noted, however, that there occasionally are children who possess such limited muscular control (e.g., severe quadriplegia in addition to a flaccid neck) that an electronic device may be the only realistic means by which a communication board strategy may be instituted. In such an instance the services of a rehabilitation engineer can help to overcome

many of the technical problems presented by such a child.

Scanning aid. The scanning communication aid is a device where the desired output is presented in sequential order with the user signifying his/her desired selection, e.g., nodding his/her head, pushing a button, etc. In some cases the user may have control over the speed of the selection presentation; however, after the selection has been made, the presentation will usually recommence at its initial starting point. A spinning "clock" hand or a person pointing to a series of letters or phrases is a basic application of this process (Cerebral Palsy Communications Group, 1975; Ontario Crippled Children's Centre, 1975).

The advantages of such a system are that the need for any consequential range-of-motion is eliminated and the system offers good visual feedback and is very simple, especially for small children, to operate and to understand. The disadvantage is that it can be very slow if the user response time is slow.

Encoding aid. The encoding system of a communication board involves the use of multiple inputs (on the part of the user) for each desired output. In its most basic form each phrase or word is assigned a number. At the point where the user has his/her best range-of-motion a number bar or line may be presented as follows:

1	2	3	4	5	6	7	8	9	0

The user need only point to the appropriate number to identify the word or phrase to be communicated. If the communication board contains hundreds of

words or phrases, particular quadrants of the board may be color coded to aid in the selection process; i.e., the user would first select the color code bar for the appropriate quadrant and then select the appropriate number from within the quadrant.

Direct selection aid. The direct selection communication aid is any device where the desired output is directly selected, or pointed to, by the user. Most traditional communication boards are of the direct selection type.

The major advantage of the direct selection technique is that it is potentially the fastest of any of the communication aids. Another advantage is that it is very simple conceptually. Its disadvantages are that it requires the largest range-of-motion of any of the communication systems. It also cannot be miniaturized (for a single selection the size of the word and the spacing around it must be large enough to ensure easy and adequate identification) which can eventually cause size limitations. The use of flip cards or multiple boards can help alleviate this problem.

Problems of the Pre-Reading Child

The major problem confronting the pre-reading child is that he/she cannot read; therefore, using words as a basis for communication is inappropriate. The alternative is to present pictures or to use standardized symbols.

The use of pictures in the construction of a communication board has been accepted for a long time (McDonald and Schultz, 1973; Vanderheiden and Harris-Vanderheiden, 1976). Whether the pictures are hand drawn, cut from magazines, photographs, etc., they may function well when conversation is

between a child and an adult, but their lack of standardization may make dialogue between children nearly impossible; e.g., if hand drawings are used my "dog" might appear to you, or to the child, to be a cat, weasel, rat or whatever; or I might interpret your "tree" as a shrub or flower, etc. This is true even though the printed word is usually placed beneath the picture, since the young child is only attending to the picture while ignoring the word.

The principal advantage, therefore, of using a standardized picture or symbol system, e.g., Rebus or Blissymbolics, is that it will allow the children in such a classroom to communicate with one another (Archer, 1977). Regardless of the system used, the English word for the representative word or symbol should always be presented with the picture or symbol. The placement of the English word beneath the picture or symbol has two advantages: 1) the reading person need not "figure out" the word or symbol but need only read the attached word; and 2) hopefully a sight word vocabulary may be started which will eventually make the use of pictures or symbols unnecessary.

When evaluating a pre-reading child for a possible communication board system, one must not only use the criteria listed previously but, in addition to language comprehension, include an evaluation of pictorial comprehension. The evaluator must be assured that the child possesses, or can be trained to acquire, the following abilities: the ability to attend to visual stimuli, the ability to differentiate between two pictures or drawings, and the ability to associate appropriate meanings to pictures or drawings (McDonald and Schultz, 1973; Ontario Crippled Children's Centre,

1975; Cerebral Palsy Communications Group, 1975; Archer, 1977).

Summary

The decision to use a communication board system with a non-speaking cerebral palsied child, requires that many factors be considered. These factors include the level of intellectual functioning, the desire to communicate, visual acuity and perception, the ability to learn or to understand language and the parental attitudes towards communication boards.

If a determination is made to implement a communication board strategy, then such factors as range-of-motion, selection of words and phrases and type of communication board to be used, must be considered.

Finally, if the non-speaking, cerebral palsied child is also at a pre-reading level, then the selection process of a picture or symbol communication system must take into account the need for child-to-child communication.

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